

Commonwealth of Kentucky
Division for Air Quality
RESPONSE TO COMMENTS

ON THE FEDERALLY ENFORCEABLE CONDITIONAL MAJOR DRAFT PERMIT

No. F-06-028

TEXAS GAS TRANSMISSION, LLC – HANSON COMPRESSOR STATION

MADISONVILLE, KY

SEPTEMBER 15, 2006

CAROLINA ALONSO, REVIEWER

SOURCE I.D. #: 21-107-00154

SOURCE A.I. #: 44341

ACTIVITY #: APE20060001

SOURCE DESCRIPTION:

Texas Gas Transmission, LLC is the owner and the operator of the Hanson Compressor Station, which is currently a minor source pursuant to 401 KAR 52:020, Title V permits.

Texas Gas is proposing to replace two reciprocating compressor engines (RC03 & RC04) and the glycol dehydration system (GD02). The new compressor engines have a rated capacity of 1,775 bhp each, they operate on a 4-stroke compression cycle, and are equipped with state-of-the-art controls for Nitrogen Oxides (NO_x). The new glycol dehydration system is design to dry up to 150 mmscf of natural gas per day and emissions of Volatile Organic Compounds (VOC) and Hazardous Air Pollutants (HAPs) will be reduced by a Thermal Oxidizer. The project also includes the replacement of the emergency generator and the installation of a new boiler.

The proposed project will cause potential emissions for HAPs (Formaldehyde, Benzene, Toluene, and Xylenes) to be above the major source threshold. The source has elected to accept federally-enforceable operating limits in order to stay below major source thresholds under the Title V program.

PUBLIC AND U.S. EPA REVIEW:

On August 2, 2006, the public notice on availability of the draft permit and supporting material for comments by persons affected by the plant was published in *The Messenger* in Madisonville, Kentucky. The public comment period expired 30 days from the date of publication.

Comments were received from Texas Gas Transmission, LLC on September 5, 2006. Attachment A to this document lists the comments received and the Division's response to each comment. Minor changes were made to the permit as a result of the comments received, however, in no case were any emissions standards, or any monitoring, recordkeeping or reporting requirements relaxed. Please see Attachment A for a detailed explanation of the changes made to the permit.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.

ATTACHMENT A

Response to Comments

Comments on Texas Gas, Hanson Compressor Station Draft Conditional Major Permit submitted by Darrel Morgan, Environmental Specialist for Texas Gas Transmission, LLC.

Draft Permit:

1. The requirement to conduct a performance test for the thermal oxidizer (Section B.3, page 5) is a requirement that Texas Gas has not previously encountered in Kentucky or other states. There are several aspects of the requirement in the draft permit that we find troubling and each aspect is outlined below.
 - a. First, we are concerned about the technical challenges of performing such a test. The ability to collect a representative sample before and after the combustion chamber is a concern as well as the ability to analyze said sample using the EPA Methods. We are in the process of working with the thermal oxidizer vendor to determine if they have any experience in this area that we can leverage.
 - b. The apparent purpose of the performance test would be to demonstrate that the thermal oxidizer is able to achieve at least 95% reduction of VOC/HAP emissions under the conditions present during the testing. While 95% reduction is the estimate provided by the vendor and therefore the control efficiency used in the emission calculations for this facility, the reality is that 95% control is not required by any state or federal regulations. Also, 95% reduction is not necessary in order to limit the facility's potential to emit VOC/HAP to below major source levels. In fact, a control efficiency of 75% would still allow the facility to qualify for a conditional major permit. ***Since a properly operated thermal oxidizer would certainly achieve control efficiencies greater than 75%, Texas Gas proposes that the permit require proper operation of the control device but that an initial performance test not be required.***
 - c. The draft permit condition also requires that the performance test, "verify the overall reduction efficiency of VOCs/HAPs." As noted above, Texas Gas proposes that a performance test not be required for this unit. However, in the event that performance testing is ultimately required, Texas Gas would propose that any testing simply measure VOC emissions and that the VOC reduction efficiency could be used as an indicator for all of the various HAP components since all of the HAPs emitted from the thermal oxidizer are also VOC.
 - d. Section G(d)(8) of the draft permit (General Provisions) specifies that performance tests shall be conducted at an emission unit's maximum production rate "if[when] the maximum production rate represents a source's highest emissions rate". Emissions from a glycol dehydration system should generally increase as the gas throughput increases. However, it is often not possible to operate a dehydration system at its design maximum capacity due to factors beyond our control such as limitations in the storage field (field pressure, etc.). The performance testing proposed in the draft permit would be for the purpose of determining the control efficiency of the thermal oxidizer rather than the mass emission rates from the

dehydration system. As long as the oxidizer is operating at the correct temperature and achieving the design residence time, the control efficiency should not vary as the mass emissions fed to the unit vary. As such, if performance testing is ultimately required, despite our concerns outlined in this letter, then Texas Gas proposes that the requirement to perform the testing at the maximum production rate be waived on a case-by-case basis in accordance with the last sentence of Section G(d)(8).

Division's response: *A performance tests for Thermal Oxidizers is often required by the Division to ensure compliance with 401 KAR 50:055, Section 2(5):*

"at all times, including periods of startup, shutdown and malfunction, the Permittee shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source"

In order to ensure that the Thermal Oxidizer is "properly" operated and so achieving the intended control efficiency, a set of operating conditions needs to be determined. This is the purpose of the performance test, so this requirement has not been removed from the permit.

Regarding Texas Gas' request to test only for VOC (not HAPs): the Division considers demonstrating VOC reduction efficiency is not enough to prove HAPs reduction efficiency, the source will have to test for both, VOC and HAPs.

Regarding Texas Gas' request to waive requirement to test at maximum production rate (Section G(d)(8)): Section G(d)(8) also reads

"If [When] the maximum production rate represents a source's highest emissions rate and a performance test is conducted at less than the maximum production rate, a source shall be limited to a production rate of no greater than 110 percent of the average production rate during the performance tests. If and when the facility is capable of operation at the rate specified in the application, the source may retest to demonstrate compliance at the new production rate"

The source is allowed to test at a rate lower than the maximum production rate, but it will be limited to a production rate 10% above the average production rate during the performance tests.

2. The requirement to maintain the minimum operating temperature of the thermal oxidizer at the average level observed during the performance test is also a concern. The combustion chamber temperature is not something that can be directly controlled by Texas Gas, but rather is a function of the operating conditions for the entire dehydration system, including the oxidizer. Additionally, Texas Gas is hopeful that the requirement to conduct a performance test will be removed from the permit based on the issues outlined above.

Rather than setting the combustion chamber temperature benchmark based on the average observed during a single performance test covering a few hours at one set of operating conditions, ***Texas Gas proposes that the benchmark be based on the minimum temperature identified by the oxidizer's manufacturer for proper operation.*** We have requested the vendor to identify this minimum temperature and will provide that information to DAQ in a later submittal when the data becomes available. This approach would also simplify the permit since

a temperature limit could be written directly into the permit rather than the additional language regarding how to determine the minimum temperature.

Division's response: *The Division does not concur, see response to comment #1.*

3. During the gas withdrawal season (typically cold weather months), it is common for the glycol dehydration system to be in an idle mode. The system will begin operation at the beginning of the season (usually late Fall) and gas will flow through the system as needed. However, there are times during the withdrawal season when there is no demand for withdrawing gas from the storage field. Rather than shut down the dehydration system when the demand temporarily lowers, the system will be held in an idle mode. No gas flows through the contactors and the temperature on the reboiler is typically lower; however, there is still heat provided to the reboiler to keep the glycol warm, which helps to facilitate a quick return to operation for the system as demand increases. The thermal oxidizer will also typically be held in an idle mode during these times rather than being totally shut down.

While being held in this idle state, there should be no still vent emissions from the dehydration system since there is neither wet gas/glycol contact in the contactor nor the the necessary heat being generated in the reboiler. Texas Gas proposes that the final permit include a statement such as the following:

Idling of the glycol dehydration system should not result in still vent emissions of VOC or HAP and use of the thermal oxidizer is not required when the dehydration system is in idle mode. Monitoring of the combustion chamber temperature is not required when the dehydration system is in idle mode.

This statement could be included in each condition where use of the thermal oxidizer is discussed (Sections B.1.a, B.4.b, B.5.a, B.6.b, B.7.a, and B.7.b) or merely added to Section B as a stand-alone statement.

Division's response: *The Division has not changed the requested requirements. Monitoring, Recordkeeping, and Reporting requirements cannot be relaxed without a significant revision to the permit. The source shall submit an application for a significant revision in order to incorporate these changes with data that shows there are no emissions when the glycol dehydration unit is operating in idle state.*

4. Section D.3.a would require facility-wide emissions to be calculated on a monthly basis and the 12-month rolling total emissions to be less than the limits specified in the permit. We have two separate issues with this condition, which are outlined below.
 - a. The permit specifies that monthly emissions from each unit be estimated based on a monthly operating rate (in SCC units) and an emission factor (in lb pollutant/scc unit). While this approach is valid for most emission units, including the reciprocating engines, it will not work for the glycol dehydration system. There is no valid emission factor in terms of SCC units for this type of process due to the many operating variables. The emission estimates provided in the permit application for the dehydration system were estimated using the GLYCalc program developed by the Gas Research Institute (GRI) specifically for

dehydrators. Texas Gas proposes that the GLYCalc software be allowed for use in estimating monthly emissions from the dehydration system. Also, use of more conservative calculations should be allowed for all of the emission units rather than strictly specifying use of data in SCC units. Texas Gas feels that the formula specifying how to calculate monthly emissions from each unit should be removed from the permit.

- b. Another concern regarding the monthly emission calculations is the requirement to include all emission points, including insignificant activities. By their very nature, insignificant activities contribute very little actual emissions relative to the significant emission units at the facility. As shown in Form DEP7007N, we do not anticipate that the facility-wide emissions from the facility will approach the major source thresholds for any regulated pollutant. As such, we do not feel that there is any value in requiring monthly emission calculations for insignificant activities in order to determine compliance.

Division's response: *Regarding the concern about calculating emissions for the glycol dehydration system, the compliance demonstration language has been changed in order to allow emissions from the glycol dehydration unit to be calculated based on GLYCalc software rather than the formula.*

Regarding the concern about including insignificant activities in total emission calculations, since the source is taking limits to preclude applicability of the Title V regulations, the whole source (including insignificant activities) needs to demonstrate compliance with these limits. The facility may use actual emissions equal to the maximum allowable level for an insignificant activity instead of calculating actual emissions.

5. The list of insignificant activities included in Section C of the draft permit does not include the last entry from permit application Form DEP7007DD that was submitted for the facility. The intent of that last entry was to have the entire list of insignificant activities included in Section C of the General Permit for Natural Gas Transmission Stations (G-04-001) included in the permit for this facility. Many of the activities listed in the general permit will also occur at this facility and should be included in Section C of the permit.

Division's response: *The Division cannot accept the following entry "Other misc. activities as outlined in section C of the general permit G-04-001" as an insignificant activity. The source shall submit a new Form DEP7007DD specifying each insignificant activity to be incorporated to the permit.*